Cowbell

Distributed Edge Computing Hub Platform-as-a-Service

Improved Operational Agility through Fast Deployable AI-Enabled Cloud-Native Distributed Edge Computing

A comprehensive enterprise edge computing platform-as-a-service solution combining software, hardware, and networking infrastructure needed to enable cloud-native distributed computing at the edge. By utilizing what we refer to as "MLOps-in-a-Box", the platform streamlines and simplifies the delivery and management of AI and other applications at the edge.

Key Differentiators

- Simplified AI application deployment and maintenance with "MLOps-in-a-Box"
- Seamless Rajant Kinetic Mesh® network integration
- Simplified "bring your own apps" capability enabled by open APIs to integrate with Cowbell's core software platform
- Fast deployable as a standalone single- or multi-node cluster in completely air-gapped and/or hybrid edge-cloud environments, and on-premises
- Flexible hardware-agnostic software platform architecture in which most subsystems are also OS-agnostic
- No vendor lock-in or 3rd party software licenses with the use of cloud-native and open-source technologies
- Supports orchestration and management of both containerized and non-containerized applications
- Easily extensible with on-demand elastic scaling of the cluster over mesh (or any backbone network)
- Secure, fault-tolerant, highly available distributed edge computing cluster with data redundancy
- Automatic discovery, creation, and management of a distributed edge computing cluster and resilient networking infrastructure enabled via a unified user-friendly UI for cluster, device, peripheral, application, and user management
- Managed services to allow ingestion, management, & analysis of data from multiple and disparate data sources
- Easily configurable HW-accelerated data (incl. video) analytics pipelines enabling low-latency decision support systems
- Powerful multi-core CPU and GPU with extensible HW expansion slots for storage (up to 120 TB), networking (including LoRa, LTE) and peripheral add-ons like a backup battery, GPS, and/or RiSM (Rajant Inline Security Module)
- Full observability of the distributed edge computing cluster and networking infrastructure
- Wired and wireless (Bluetooth LE, Wi-Fi, and Kinetic Mesh®) peripherals integration and management
- Compatible with almost all traditional communications infrastructure including Cellular/LTE, Satellite, and Fiber
- Configurable as a Wi-Fi Access Point, DHCP server, and/or a Mesh networking node
- Rugged industrial-grade enclosure with IP67 for indoor and outdoor use

  And more...

Model	Description
CB1-2450	A comprehensive enterprise edge computing platform-as-a-service solution combining software, hardware, and networking infrastructure needed to enable cloud-native distributed computing and simplify the delivery and management of AI and other applications at the edge.

Key Technical Specifications

Networking Platform	• Wireless: BLE and Wi-Fi 5 (802.11ac) (2.4, 5 GHz) • Kinetic Mesh®: Rajant Cardinal AG1[1] with (1) dual-band 2.4/5 GHz, 2x2 MIMO, 300/866.7 Mbps transceiver, and (1) 5 GHz, 2x2 MIMO, 866.7 Mbps transceiver • Max. RF Transmit Power[2]: 25 dBm ± 2 dB (dual-band 2.4 GHz), 22 dBm ± 2 dB (dual-band 5 GHz), 23 dBm ± 2 dB (5 GHz) • Antenna Connectors: (2) SMA (female) for dual-band 2.4/5 GHz, (2) SMA (female) for 5 GHz, (2) SMA (female) for BLE/Wi-Fi (2.4 GHz)
Computing Platform	• AI Performance: 100 TOPS • GPU: 1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores (918 MHz) • CPU: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU (2MB L2 + 4MB L3) • Memory: 16GB 128-bit LPDDR5 (102.4GB/s) • Storage: 1TB SSD • Operating Systems: Linux
Software Platform	• Clustering: automatic discovery, creation, and scaling of a distributed computing cluster • Reliability: fault-tolerant, high-availability, with data redundancy • Operations: MLOps-in-a-Box for simplified delivery and management of AI and other applications • Management: Device, Cluster, Peripheral, and Applications management with integrated UI
Power	• DC Power: 9 – 28 VDC • Power Consumption[3]: 25W (typical); TBD (max)
Input/Output	• Ethernet: 10/100/1000 RJ-45 • DC Input PWR: Threaded power jack panel-mount connector, Current Rating: 5 Amps • Field Accessible: (1) HDMI 2.0 (max resolution 3840x2160), (1) USB 3.1 Type-A, (1) USB 2.0 Type-A, (1) 14-pins GPIO Expansion I/O Connector (1x RS232, 1x RS422, 2x Digital Input, 2x Digital Output) • LED: (1) Status LED for BreadCrumb module and (1) Status LED for Compute module
Extensions (available upon request)	• Wireless: LTE/5G/LoRa Connectivity by extension sockets • Mass Storage: up to 120 HDD by extension sockets • Add-ons: GPS by extension sockets, Battery backup • Security: RiSM Integration
Physical	• Dimensions: TBD • Weight: TBD • Cooling: Passive Cooling • IP Rating: IP67 (not verified) • Ambient Temperature: -20°C … +60°C (operating) (not verified) • Humidity: 0 to 95% RH (not verified) • Shock and Vibration: TBD
Compliance	• FCC (US) (pending) • IC (Canada) (pending)

1   Channel, frequency and bandwidth options vary based upon regional and local regulations and certifications.
2   RF transmit power is governed by local regulations and varies by frequency.
3   Power consumption depends on transceiver and compute configuration.

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20+ OF GAME-CHANGING WIRELESS

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